REMARKS

I. Status of the Claims

Following entry of the amendments herein, claims 1, 2, 4, 6-8, 10-14, and 17-19 are pending and stand rejected. Claims 3, 5, 9, 15, and 16 have been cancelled. Claims 1, 2, 4, 6, 7, 10, 11, 13, 14, and 17 are amended herein.

Support for the amendment to claim 1 may be found, for example, in Figure 3 of the application as filed, as well as the description of Figure 3 on page 5 of the specification. Support for the amendment to claim 2 may be found in Figure 3 and Figure 4, as well as the first line on page 8. The amendments to claims 4 and 6 are for reasons of dependency and are supported both by those original claims and throughout the specification. The amendment to claim 7 is supported in the paragraph beginning with the word "assembly" on page 12. Support for the amendment to claim 10 may be found in the second full paragraph on page 12. Support for the amendments to claims 11 and 13 is provided in the claims as filed as those changes are only made to alter dependency. The amendment to claim 14 is supported by Figure 3 as well as the description of Figure 3 appearing on page 5 of the specification. Finally, the amendment to claim 17 is supported in Figure 3, as well as in the first paragraph on page 12 of the specification. Entry of these amendments and allowance of the amended claims is respectfully requested.

II. Claim Rejections - 35 U.S.C. § 112

Claims 1 and 18 stand rejected under 35 U.S.C. § 112, first paragraph, for allegedly failing to comply with the written description requirement. The Office Action states that it is not clear from Figures 1 and 3 that the flow path contacts a membrane and whether or not the contact of resin with a resin is limited to the transport framework. Applicants submit that the amendment of claims 1 and 17 has rendered this rejection moot; however, in the interest of

providing a full and complete response to the rejection, Applicants provide herewith the Declaration of Ravi Chidambaran, one of the inventors of this application. Mr. Chidambaran's Declaration includes a number of photographs of examples of embodiments of the invention. In these photographs, a media of the invention is shown placed in a dilute chamber frame for an electrodeionization apparatus. The photographs show an embodiment of the invention that is the same as that depicted in Figure 3. The Examiner is asked to kindly note the upper layer of cation resin in contact with the cation membrane, as well as the lower layer of anion resin in contact with the anion membrane. The Examiner is further asked to note the alternating blocks of cation and anion resin within the solid layers of cation resin that are each adjacent to their respective membranes. As is clearly demonstrated, the cation layer and anion layer define a void that is filled with resin through which water flows to be purified. This void is the flow path. As is clearly demonstrated, both in the specification and drawings, as well as in the photographs, resin within the flow path does not contact a membrane because resin within the flow path is completely covered by either the cation resin layer or the anion resin layer. Although these layers can get wet as described in the application, they are not water permeable and therefore they define a barrier around which water does not flow.

Claims 11 and 12 stand rejected under 35 U.S.C. § 112, first paragraph, as allegedly failing to comply with the enablement requirement. The Office Action states that the binder are not described in the specification in such a way that one skilled in the art would be able to make and use the invention. Applicants disagree. Suitable binding agents are discussed in the specification. For example, in the first full paragraph on page 8, polyethylene, natural rubber, butyl rubber and nitrile rubber are listed as possible binding agents. Furthermore, it is noted that

nitrile rubber provides the best results. This rejection should be withdrawn and the claims allowed.

Claim 19 stands rejected under 35 U.S.C. § 112, first paragraph, as allegedly failing to comply with the enablement requirement. Applicants respectfully submit that the limitation described in claim 9 is explained, for example, in the first full paragraph on page 4 of the specification which begins with the letter "F" and states "the design of this part is done to achieve an objective of equal water distribution across the width of the media by providing flow dividers as part of the media." One skilled in the art would recognize that these flow dividers may be beneficial to defining water flow in a dilute chamber media of the invention. Withdrawal of this rejection and allowance of the claim is respectfully requested.

Claims 1, 10, and 14 stand rejected as allegedly indefinite for inclusion of the word "substantially." That word no longer appears in those claims. The rejection is therefore moot and should be withdrawn.

III. Claim Rejections - 35 U.S.C. §§ 102(b) and 103(a)

Claims 1-8, 10, and 14 stand rejected under 35 U.S.C. § 102(b) as allegedly anticipated by, or in the alternative, under § 103(a) as allegedly obvious over United States Patent No. 6,379,518 to Osawa et al. Claims 11-13 stand rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over Osawa in view of United States Patent No. 5, 015,344 to Nidola et al. Applicants submit that these rejections are improper because neither Nidola nor Osawa teaches or suggests all of the limitations of the claims. Neither of the cited patents includes a framework as that term is described and used in the claims. The frame reported in Osawa is merely a standard dilute chamber electrodeionization frame, as would be recognized by one skilled in the art. That is markedly different from a resin transport framework as provided in the claims. This

may be most efficiently seen by viewing Figure 9 of Osawa. As can be seen in Figure 9 of Osawa, the anion membrane (124) is in direct contact with the cation and anion resin within the framework (123). Similarly, the cation membrane (125) is in direct contact with the cation and anion resin within the framework (123). Furthermore, because there is no defined flow path within the plane of the dilute chamber, water is free to move out of the plane of the ion exchange resin and contact both the cation and the anion membrane. This is markedly different from the current invention in which the cation and anion resin in the flow path is completely covered by a layer of anion resin between the flow path and the anion membrane. Similarly, the opposite side of the resin framework includes a layer of cation resin between the cation membrane and the resin in the flow path.

Osawa simply does not have a feature of a framework that acts as a layer of cation resin on the cation membrane side and a layer of anion resin on the anion membrane side. In the instant invention, the cation membrane is in contact with only cation resin (from the framework) and similarly, the anion membrane is in contact with only anion resin (again in the framework). Lack of membrane contact with oppositely charged resin provides a highly beneficial affect by decreasing bipolar water splitting. Neither Osawa nor Nidola has this feature. In both Osawa and Nidola, each membrane is in contact with resins of both polarity.

Neither Osawa nor Nidola teaches all of the limitations of the claims of the current invention. Therefore, the rejections based on 35 U.S.C. § 102 and 35 U.S.C. § 103 should be withdrawn and the claims should be allowed.

CONCLUSION

It is believed that a full and complete response to all of the pending rejections and objections in this case has been made and that the application is in condition for allowance. Reconsideration and allowance of all claims is respectfully requested. In the event that contact with the undersigned would facilitate prosecution of this case, the Examiner is invited to contact me at the number given below.

Respectfully submitted,

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